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Regional Aviation Activity Tracking Report

2014 Edition

April 2014



Prepared by the **Regional Airport Planning Committee**



METROPOLITAN
TRANSPORTATION
COMMISSION



Bay Conservation
and Development
Commission



Association of
Bay Area Governments

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I. Introduction

Airports are an important part of the Bay Area's transportation infrastructure and provide the ability for Bay Area residents to travel and conduct business throughout the world. They also support the local Bay Area economy in many ways, from providing airport and airline jobs for Bay Area residents, to maintaining the Bay Area's position as one of the world's most frequented tourist destinations, to providing air cargo services for a wide range of businesses.

The primary responsibility for planning for the Bay Area's future aviation growth rests with the airports themselves and the FAA. However, airport development decisions also have regional implications related to surface transportation plans, land use plans and potential impacts on San Francisco Bay. Because of these important regional issues, the Association of Bay Area Governments (ABAG), Bay Conservation and Development Commission (BCDC), and the Metropolitan Transportation Commission (MTC) formed the Regional Airport Planning Committee ("RAPC") a number of years ago to assess strategies for handling future aviation demand and to advise the airports and FAA on the preferred regional approach.

Based on the latest analysis completed in 2011, RAPC believes the strategies below will provide the best course of action for serving projected long-range aviation demand in 2035, while providing the greatest benefit to air travelers and the economy and minimizing environmental impacts.

- Shift more air passengers to Oakland and San Jose Airports
- Provide additional airline service at Sonoma County Airport for North Bay air passengers
- Support further airline service expansion at airports outside the Bay Area (Sacramento, Stockton, and Monterey), whose area residents currently use Bay Area airports
- Implement key elements of the FAA's NextGen air traffic management system to enable more efficient airspace and runway operations
- Implement new demand management approaches at SFO to better match the number of flights with the airport's runway capacity
- Develop a High Speed Rail (HSR) system to serve a portion of the air passengers traveling between the Bay Area and other parts of California (while Bay Area airports could serve projected 2035 demand without a HSR system, HSR would reduce flights at all three Bay Areas while also providing additional environmental benefits for the region).

Purpose of this Report

Long-range aviation plans require periodic monitoring for changes in the underlying conditions and assumptions that provided the basis for the original plan. This report is intended to track

important activity trends at the three major Bay Area airports--Oakland International (OAK), San Francisco International (SFO), and Mineta San Jose International (SJC)—that relate to airport use and possible future runway capacity problems. Depending on the results, the strategies above may need further review.

The most important trends to track in this regard are:

- The number of air passengers using each airport
- The total number of flights handled at each airport, including passenger, air cargo, General Aviation, and military flights
- Airline service decisions
- Flight delays at each airport

The information included in this report is drawn from airport reports and FAA databases and can be easily updated each year. This report provides data for the period from 2007 through 2013 (2007 was the base year for the latest RAPC study and 2013 is the most current year for which data is available).

Another purpose of the report is to help RAPC and the Bay Area airports determine when adjustments to the long-range aviation forecasts used for airport planning are needed. If the tracking information shows that forecasted air passenger, air cargo, and aircraft activity are much lower or much higher than currently projected, RAPC and the Bay Area airports will need to determine the cause(s) for the differences and adjust the forecasts accordingly.

II. Trends in Air Passenger and Air Cargo Activity

Bay Area aviation activity continues to be affected by national and global economic conditions. Between 2007 and 2013 the number of air passengers using Bay Area airports increased, but air cargo activity declined significantly. Passenger growth has been concentrated at San Francisco International Airport, which has seen increased service by domestic and international airlines. Air cargo volumes declined at all three airports.

Air passenger activity in 2013 was very close to RAPC's forecast, but air cargo volumes remain lower than projected.

Air Passengers

2007 to 2013 Comparison

Total passengers at the three airports increased from 60.6 million passengers to 63.4 million (4.6%)

- International passengers increased 10%
- Domestic passengers increased 3.7%

Between 2007 and 2013, SFO gained 9.6 million annual air passengers, while OAK and SJC lost a combined 6.7 million annual air passengers.

- SFO has gained air passengers in each year since 2007, and passenger volumes in 2013 are at an all-time high.

2012 to 2013 Comparison

- Bay Area air passenger volumes increased 1.2 % in 2013 compared to 8.6% the prior year
- OAK passenger volumes dropped 3% between 2012 and 2013, while SJC's showed a 5.9% gain.
- In 2013, international air passengers comprised 16.1% of all Bay Area air passengers, up from 15.8% in 2012. SFO served 95.5% of these passengers, a slight drop from 97% the previous year.

RAPC Forecasts

- The number of Bay Area air passengers using the three Bay Area airports is very close to RAPC's projections for 2013-- 63.4 million annual passengers versus RAPC's projection of 63.6 million annual passengers.

Table 1
Air Passengers

	OAK	SFO	SJC	Total
2013				
Domestic	9,580,554	35,135,994	8,484,787	53,201,335
International	162,333	9,743,762	298,532	10,204,627
Total	9,742,887	44,879,756	8,783,319	63,405,962
2012				
Domestic	9,885,679	34,776,416	8,124,270	52,786,365
International	155,185	9,546,145	171,904	9,873,234
Total	10,040,864	44,322,561	8,296,174	62,659,599
2011				
Domestic	9,074,541	31,787,331	8,187,813	49,049,685
International	192,029	9,013,021	169,571	9,374,621
Total	9,266,570	40,800,352	8,357,384	58,424,306
2007				
Domestic	14,455,632	26,354,276	10,505,188	51,315,096
International	160,962	8,962,965	153,201	9,277,128
Total	14,616,594	35,317,241	10,658,389	60,592,224

Air Cargo

2007 to 2013 Comparison

Bay Area air cargo volumes have continued to decrease after a slight rebound in 2010 and are currently 30% lower than in 2007.

Air cargo volumes have decreased at all three airports: OAK (-22%), SFO (-35%), and SJC (-49%)

2012 to 2013 Comparison

Air cargo volumes dropped 1% between 2012 and 2013

OAK handled 55% of Bay Area air cargo, followed by SFO at 40% and SJC at 5%.

Forecasts

Current air cargo volumes are 33% lower than projected by RAPC for 2013.

Table 2
Air Cargo (Tons)

	OAK	SFO	SJC	Total
2013				
Freight	549,147	359,012	46,147	954,306
Mail	6,440	41,889	674	49,003
Total	555,587	400,901	46,821	1,003,309
2012				
Freight	542,662	371,868	41,247	955,777
Mail	7,923	47,877	570	56,370
Total	550,585	419,745	41,817	1,012,147
2011				
Freight	540,051	375,694	43,318	959,063
Mail	10,517	45,481	722	56,720
Total	550,568	421,175	44,040	1,015,783
2007				
Freight	706,700	555,549	89,849	1,352,098
Mail	7,165	65,085	1,577	73,827
Total	713,865	620,634	91,426	1,425,925

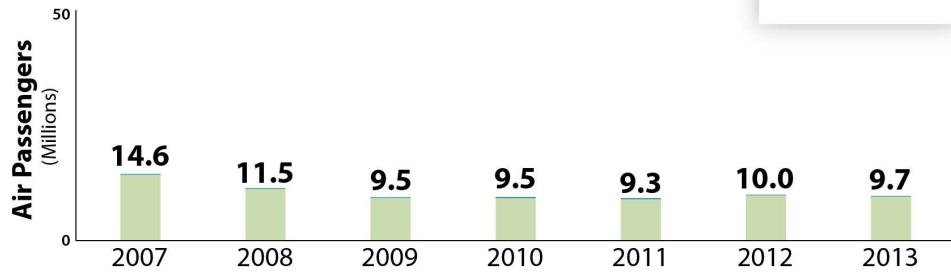
Figure 1

Air Passengers and Forecasts

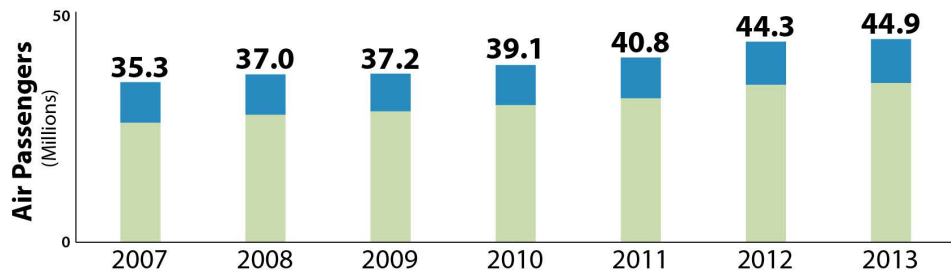
Legend

- Domestic
- International
- Forecast

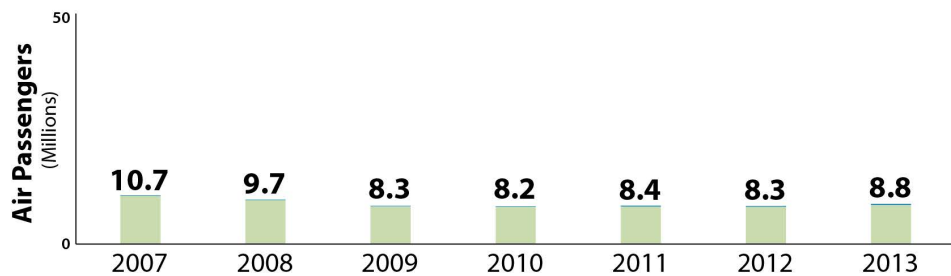
Oakland Airport



San Francisco Airport



San Jose Airport



Bay Area Total

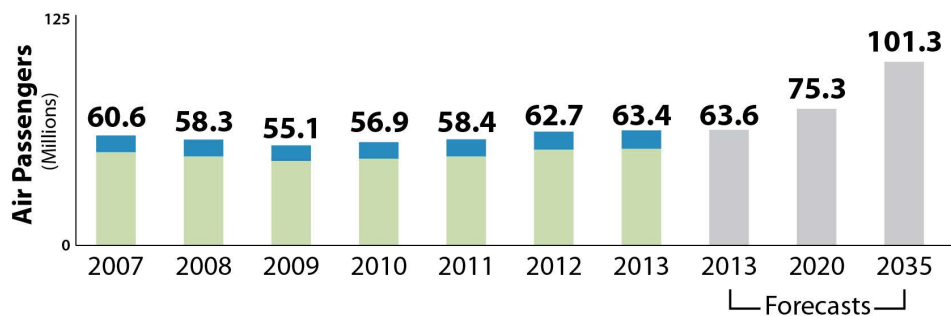


Figure 2

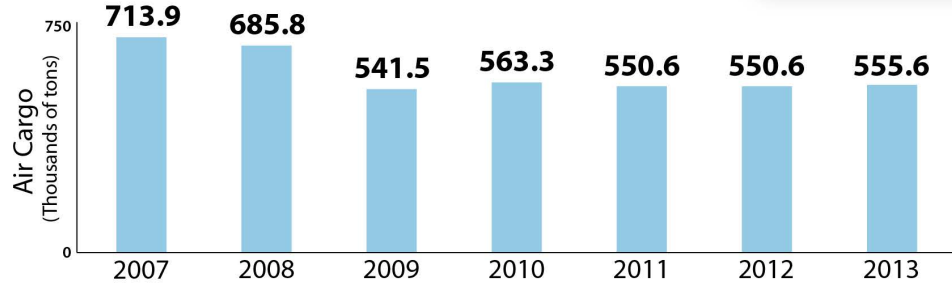
Air Cargo and Forecasts

Legend

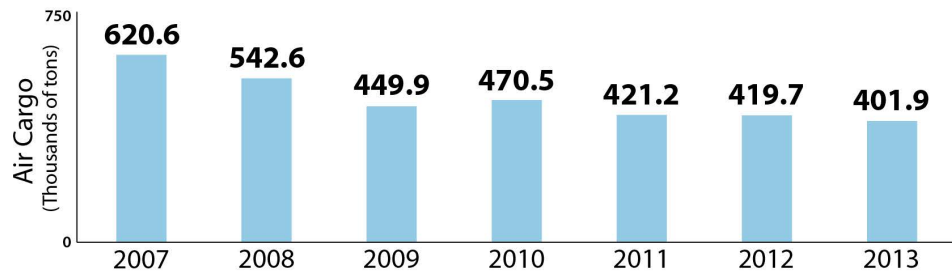
Actual cargo

Forecast cargo

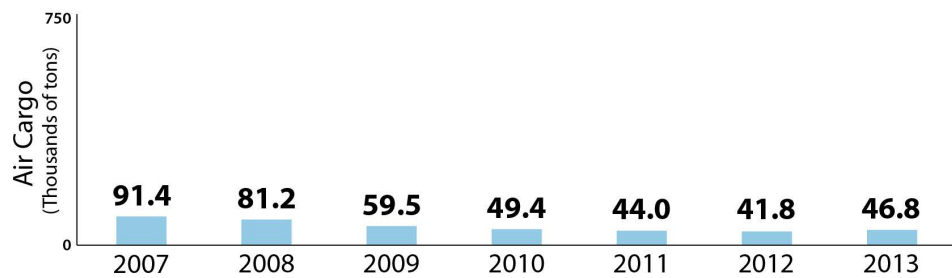
Oakland Airport



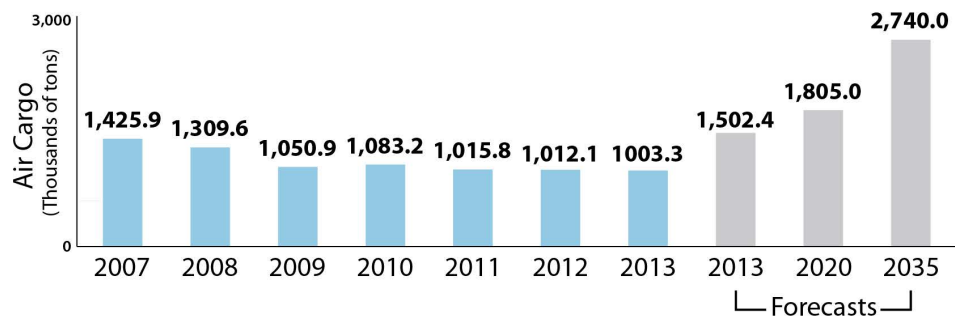
San Francisco Airport



San Jose Airport



Bay Area Total



III. Trends in Aircraft Operations

Figure 3 shows recent trends in the number of annual aircraft operations (takeoffs and landings) at each Bay Area airport. Airport runway capacity problems occur when the number of flights at an airport approaches or exceeds the ability of the airport's runways to handle these flights without large delays. Figure 3 also shows the estimated runway capacity for each airport expressed as a range in annual operations. Airline passenger flights (Air Carrier and Air Taxi flights by smaller regional airlines, including some on demand passenger flights) are the predominant users of the runways at the three major Bay Area airports (80% of operations). Air cargo flights constitute only a small percent of airport activity and are not expected to be a significant contributor to runway capacity problems in the future.

Flights by small private aircraft used for business and personal travel (General Aviation) range from 3% of runway operations at SFO to 38% at OAK. Some of these General Aviation flights takeoff and land on the same runways as the airlines, although other General Aviation airports in the region accommodate the bulk of the region's General Aviation activity.

2007 to 2013 Comparison

There were 168,460 fewer aircraft operations (takeoffs and landings) at the three major Bay Area airports in 2013 compared to 2007, an 18% decrease.

The decreases in airport operations over this period were spread over all aircraft categories:

- Passenger Airline (Air Carrier and Air Taxi): 53,050 (8.1% decrease)
- Air Cargo: 17,800 (41.8% decrease)
- General Aviation/Military: 96,610 (55.9% decrease)

Total aircraft operations at SFO increased by 42,000 (11%), while total aircraft operations at OAK and SJC decreased by a combined 209,000 flights (39%).

2012 to 2013 Comparison

Total flights using the three Bay Area airports decreased 1.2%.

Forecasts

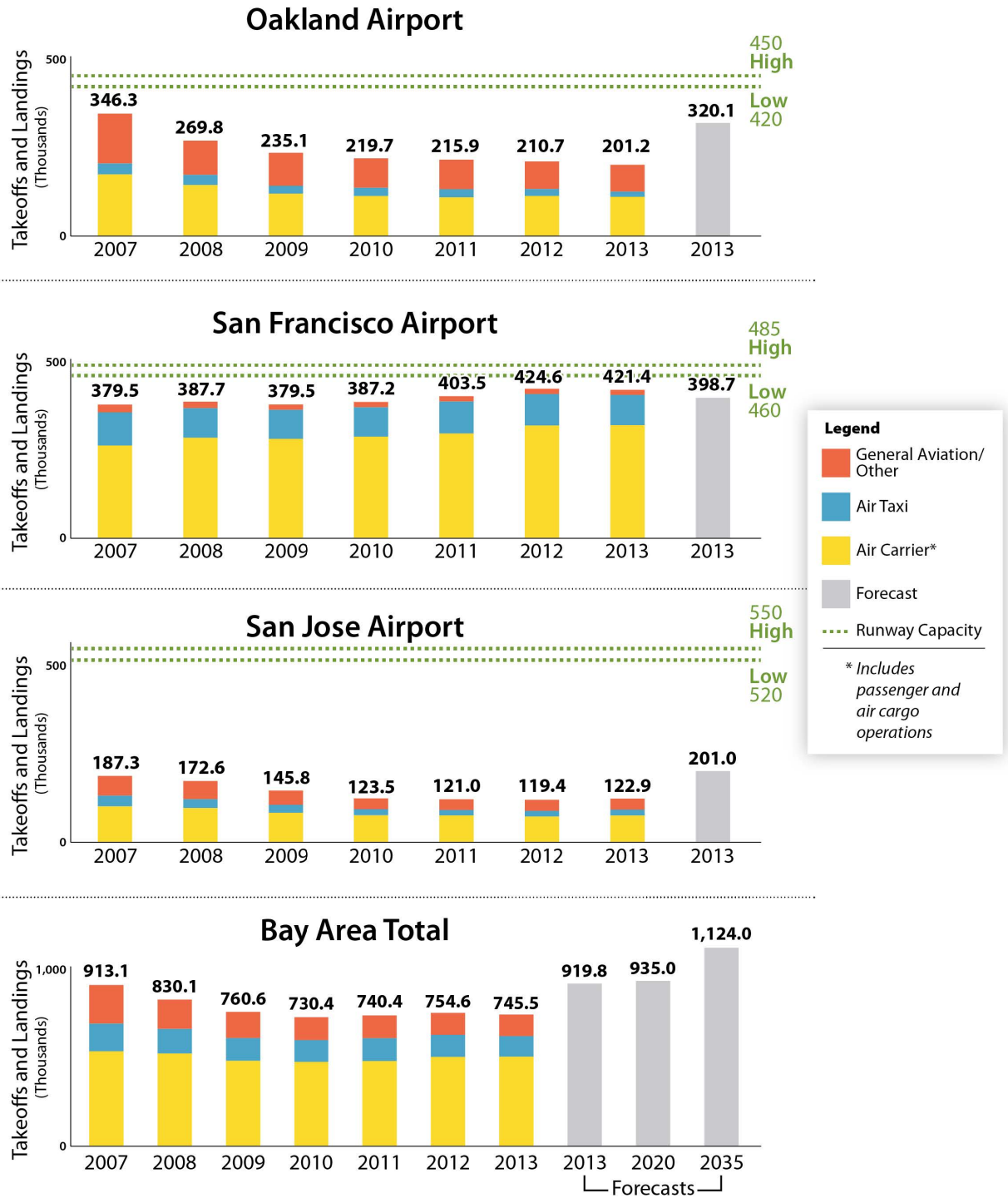
Total flights at the three major Bay Area airports are 19% lower than projected by RAPC for 2013.

Current aircraft operations levels are 59-64% lower than projected for OAK and SJC, but at SFO, the Bay Area airport closest to its runway capacity; aircraft operations are 5% higher than projected.

Table 3
Annual Aircraft Operations

	OAK	SFO	SJC	Total
2013				
Air Carrier	92,996	315,290	73,476	481,762
Air Taxi	14,551	85,601	16,524	116,676
Air Cargo	17,404	5,920	1,434	24,758
GA+Military	76,288	14,589	31,513	122,390
Total	201,239	421,400	122,947	745,586
2012				
Air Carrier	91,271	314,025	70,562	475,858
Air Taxi	19,819	88,987	15,752	124,558
Air Cargo	21,376	6,274	1,540	29,190
GA+Military	78,184	15,280	31,575	125,039
Total	210,650	424,566	119,429	754,645
2011				
Air Carrier	86,052	290,849	73,094	449,995
Air Taxi	22,980	90,582	15,592	129,154
Air Cargo	22,945	6,782	1,932	31,659
GA & Military	83,896	15,351	30,348	129,595
Total	215,873	403,564	120,966	740,403
2007				
Air Carrier	141,735	254,995	97,702	494,432
Air Taxi	31,024	95,582	30,452	157,058
Air Cargo	32,174	7,140	3,242	42,556
GA& Military	141,417	21,783	55,801	219,001
Total	346,350	379,500	187,197	913,047

Figure 3
Aircraft Operations and Forecasts



IV. Trends in Airport Shares of Bay Area Air Passengers

A key element of RAPC's strategy to serve future Bay Area aviation demand is to relieve pressure on SFO's runways (and the resulting flight delays and passenger inconvenience) by shifting more passenger traffic to Oakland and San Jose Airports. Both of these airports have the terminal facilities and runway capacity to accommodate increased flights. However, because the airlines decide which airports they want to serve, it is difficult to forecast how many passengers will use each Bay Area airport in the future. RAPC's preferred 2035 distribution of airport passengers is termed "Scenario B" and is shown in Figure 4. In this Scenario, both OAK and SJC would serve a larger percentage of the domestic air passenger market, while the bulk of the international airline flights would continue to use SFO (which handled 95% of all international air travelers in 2013). Rising flight delays at SFO (and increased costs for the airlines) may be one factor that could spur greater use of OAK and SJC airports by airlines in the future.

2007 to 2013 Comparison

Low cost airlines such as Southwest, Virgin America, and JetBlue have had a significant impact on domestic passenger volumes at SFO. SFO's share of domestic air passengers increased from 51 % in 2007 to 66 % in 2013.

SFO's share of all Bay Area air passengers also increased between 2007 and 2013, from 58% in 2007 to 71% in 2013. Conversely, OAK and SJC's combined share of Bay Area air passengers dropped from 42% in 2007 to 29% in 2013.

2012 to 2013 Comparison

OAK's share of Bay Area air passengers dropped slightly in 2013 (from 16% in 2012 to 15.4% in 2013), while SJC's share rose slightly from 13.2% in 2012 to 13.8% in 2013.

However SFO's share domestic and total Bay Area air passengers remained virtually unchanged.

As Table 4 shows, OAK and SJC lack frequent service in a number of the larger domestic air travel markets. Many of these markets have enough passengers to support competitive airline service from all three Bay Area airports.

Airline Service Changes at Bay Area Airports

For more detail on recent airline service additions at each Bay Area airport, refer to Appendix A. Appendix A includes a list of new services in 2013 as well as those that have already occurred or are anticipated to occur in 2014.

Figure 4
**Airport Shares of
Bay Area Air Passengers**

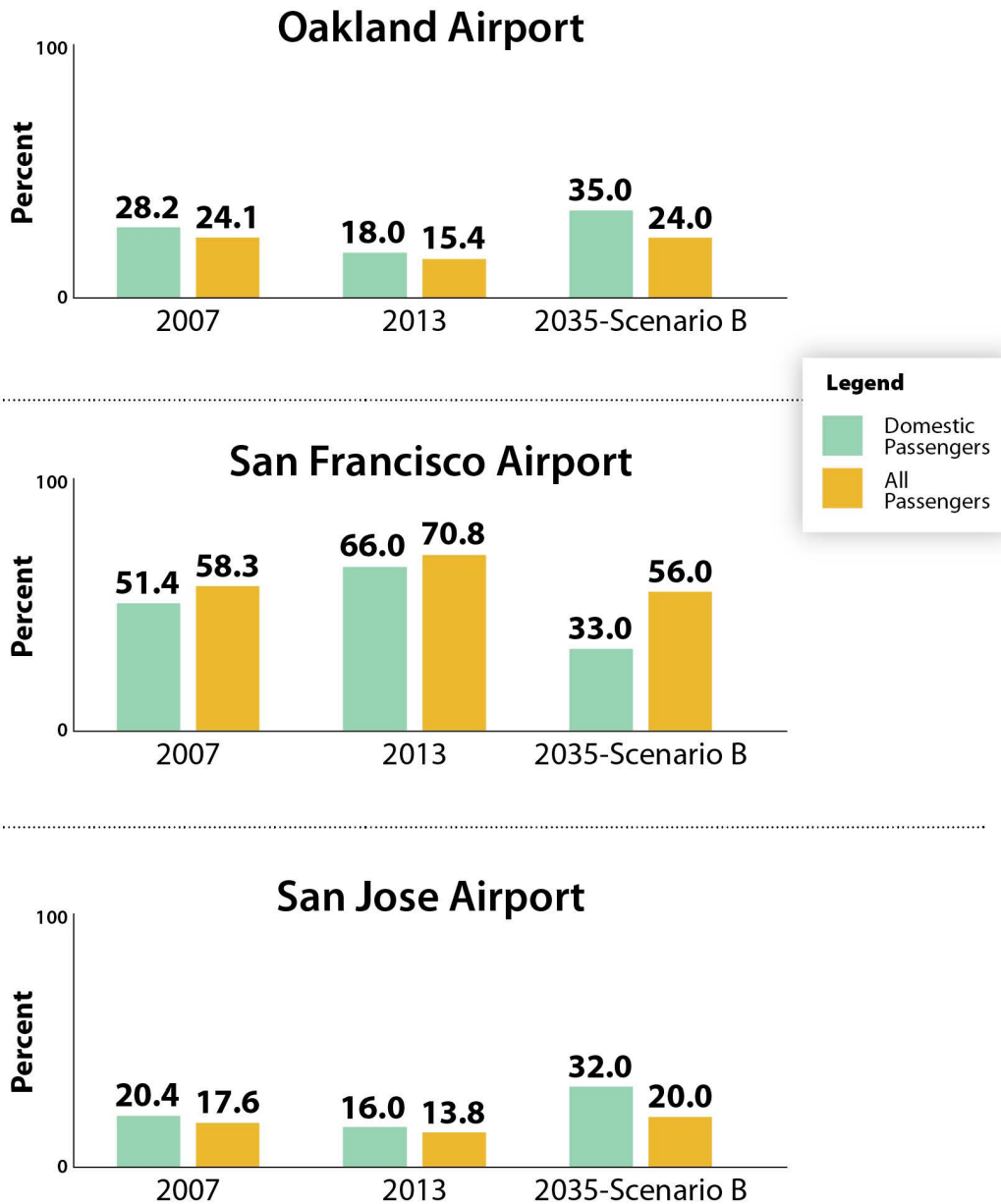


Table 4
Average Daily Airline Departures, August 2013

Destination	OAK	SFO	SJC
Los Angeles Area	48.0	75.2	47.5
New York	1.0	41.1	1.0
San Diego	10.9	21.3	9.3
Las Vegas	10.6	23.6	8.5
Seattle/Tacoma	10.6	22.6	9.5
Chicago	3.8	28.5	3.0
Phoenix	10.4	13.9	9.7
Portland	9.2	18.3	8.1
Denver	3.8	17.4	7.1
Washington	1.0	14.0	0.0
Boston	1.0	13.1	1.0
Honolulu	2.0	6.8	1.7
Dallas/Fort Worth	1.0	17.0	4.9
Atlanta	0.0	10.5	0.9
Houston	0.0	10.6	1.9
Salt Lake City	7.5	8.9	4.7
Minneapolis	0.0	9.8	1.9
Philadelphia	0.0	8.6	0.0
Kahului	2.0	2.9	2.0
Austin	1.0	8.2	1.8
Detroit	0.0	4.8	0.0
Orlando	0.0	1.6	0.0
Baltimore	0.0	1.4	0.0
Albuquerque	2.9	2.0	0.0
Kansas City	1.0	2.1	0.0
Totals	127.5	384.3	124.5

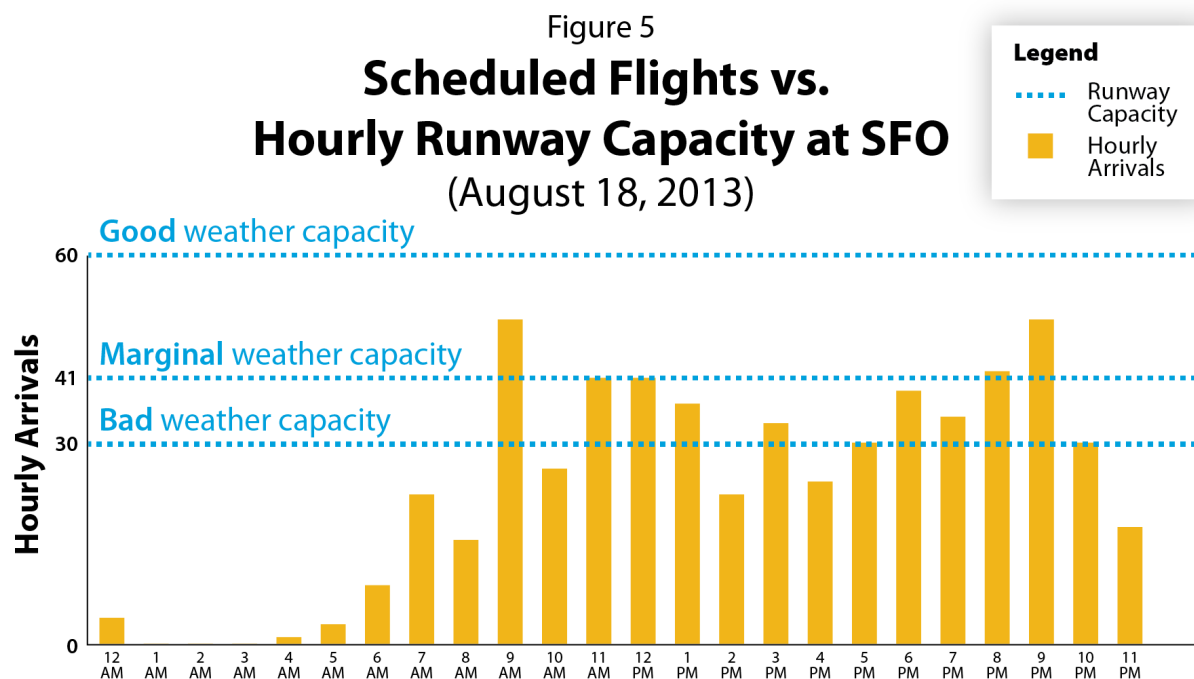
Note: Markets are ranked from highest number of air passengers to lowest. Destinations shown in **Bold** have limited (compared to SFO) or no air service from Oakland or San Jose Airports.

* Includes Los Angeles, Burbank, Long Beach, Ontario, and Orange County Airports

V. Factors Related to SFO's Runway Capacity Issues

Airline Schedules

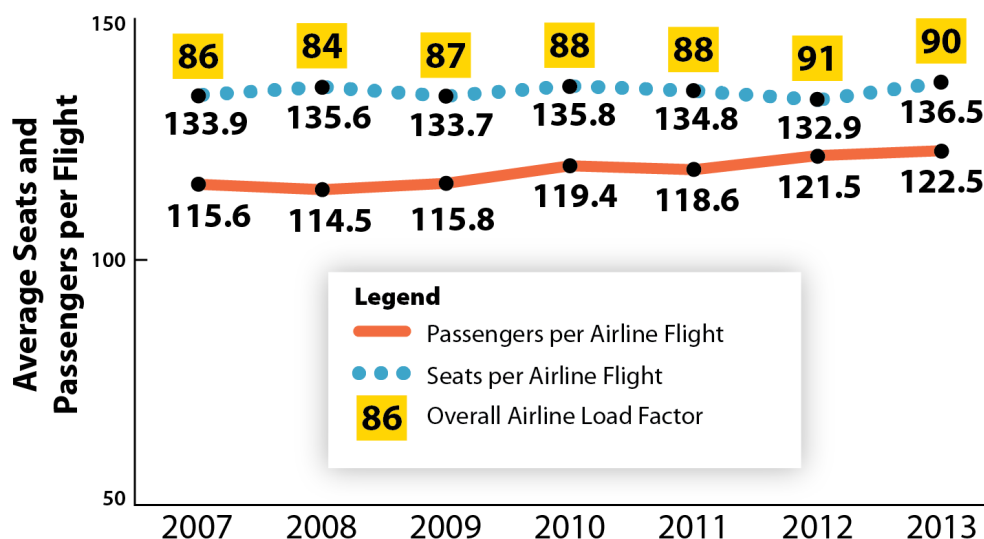
SFO's well-known flight delay problems during poor weather are caused by the close spacing between its two main landing runways (Runways 28R and 28L). During bad weather and some marginal weather conditions one runway is closed for safety reasons, and the FAA must delay flights until SFO is able to accept these flights. Figure 5 compares airline flight schedules for the month of August with SFO's hourly runway arrival capacity under various weather conditions -- good weather (clear weather, the predominant type of weather), marginal weather (often associated with Summer fog), and very bad weather (generally associated with storms and very low visibility conditions requiring aircraft to use instrument navigation to land). While the current number of scheduled flights at SFO is well below the airport's hourly arrival capacity in good weather, Figure 5 shows that airline flight schedules can still cause delay problems in marginal and bad weather as the number of arriving flights is close to or exceeds the airport's runway capacity during some hours. The FAA can work with the airlines at SFO to make voluntary changes to their schedules to address this issue.



Average Passengers Per Flight at SFO

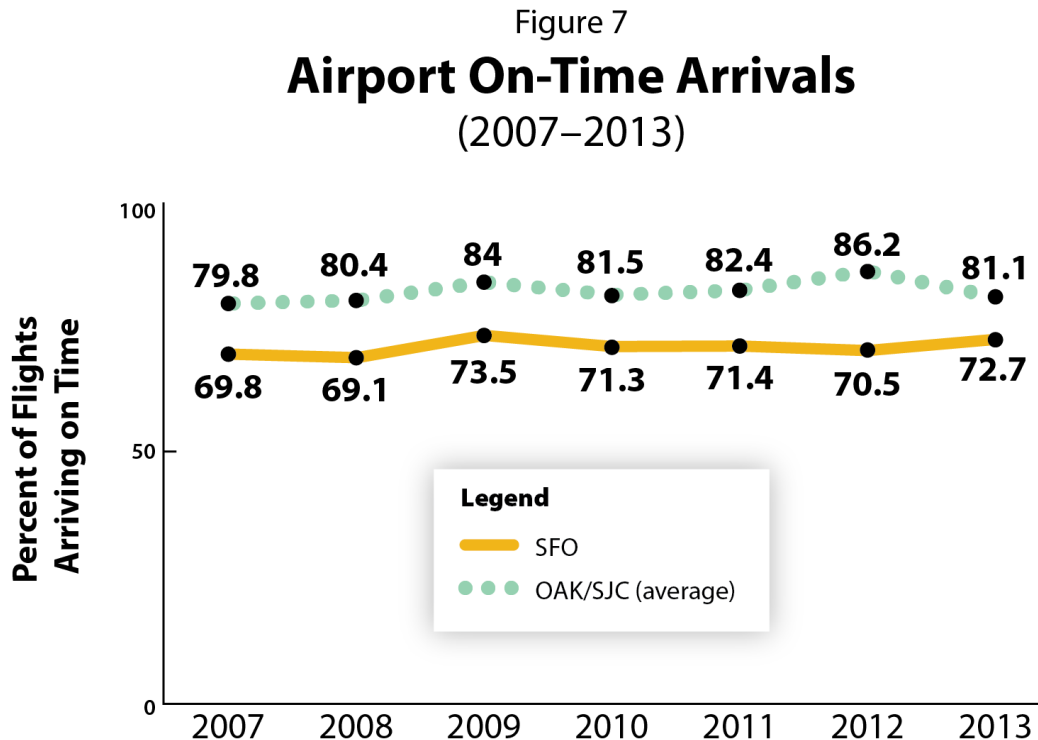
One way airport runways can handle more passengers is for airlines to use larger aircraft that carry more passengers per flight (e.g., large widebody jets carry several hundred passengers while smaller Regional Jets and Turboprops carry 30-70 passengers). Also, the more seats the airlines fill the greater the number of passengers carried per flight. Figure 6 illustrates the trend in average seats per flight at SFO (indicative of aircraft size) and load factors (percentage of seats filled) for the peak travel month of August. Because SFO is a connecting hub for United Airlines as well as the Bay Area's main domestic and international airport, a wide variety of aircraft use SFO, from the smaller Regional Jets to the large widebody aircraft flying long distance routes. Between 2007 and 2013 the average number of passengers carried per flight at SFO grew from 115.6 to 122.5 (6%) due to the combination of increasing aircraft size and very high load factors (currently around 90% in August). RAPC's long-range forecasts anticipate a gradual continuation of this trend in the future.

Figure 6
**Average Seats and Passengers
Per Airline Flight at San Francisco Airport
(August)**



VI. Delays to Air Passengers Using Bay Area Airports

Of course the main impact of airfield capacity problems is on air passengers whose flights are delayed or cancelled. The US Department of Transportation keeps statistics on the percentage of flights that are delayed more than 15 minutes at each of the nation's larger airports. Figure 7 shows this data for 2007 through 2013. Typically SFO is one of the most delayed airports in the country, ranking in the top 5 of major airports with the poorest on time performance. In contrast, a larger percentage of flights at OAK and SJC arrive on time, as these airports are not affected by poor weather to the same extent as SFO. Airlines and air passengers using these airports will have more reliable schedules, an important factor that may lead airlines to expand service at these airports in the future.



APPENDICES

Appendix A- New Airline Service

	2013	2014
OAK	Dallas Fort Worth -Seasonal (Spirit) Guadalajara (Volaris)	Chicago O'Hare (Spirit) Dallas Fort Worth -Resume daily (Spirit) Los Angeles-Additional daily flights (Delta) Stockholm and Oslo (Norwegian) Baltimore-New seasonal (SWA) Kansas City - Additional seasonal (SWA) Chicago Midway-Additional seasonal (SWA) Honolulu-Additional flights (Hawaiian) Kauai and Island of Hawaii-New seasonal (Hawaiian)
SFO	Ft Lauderdale-Additional flights (United) Copenhagen (Scandinavian Airlines) Shanghai-Additional flights (China Eastern) Wuhan (China Eastern) Paris-Additional flights (United) Newark, NJ-Additional flights (Virgin America) Austin, TX -Additional flights (Virgin America) Anchorage-Additional seasonal (Virgin America) Guadalajara, Morelia, and Leon MX (AeroMexico) Sun Valley, ID - Seasonal (United)	Dublin (Aer Lingus)
SJC	Tokyo (All Nippon) Los Angeles (Virgin America)	Salt Lake City (Alaska) Additional flights to Denver, San Diego, Seattle, and Orange County (SWA)

Note: Table does not show any service that was lost during these years.

Appendix B

Data Sources for Air Passengers and Air Cargo

Air passenger and air cargo data can be obtained from the airport operators. All three airports regularly post airport traffic data on their websites. Current links to these data sources are summarized below:

OAK: http://www.flyoakland.com/airport_stats_monthly_report.shtml

SFO: <http://www.flysfo.com/media/facts-statistics/air-traffic-statistics>

SJC: <http://www.flysanjose.com/fl/about.php?page=activity/activity&subtitle=Activity+and+Financials+|+Airport+Activity>

Oakland Airport provided separate information for the number of international air passengers.

Data Sources for Aircraft Operations

Each airport reports total aircraft operations on their website, but Oakland Airport's website does not break down aircraft operations by the type of operation; this data can be found on the FAA website below. San Francisco and Oakland provided data on the number of all cargo flights as this data is not on their websites.

FAA information on the number of flights at each airport by Air Carrier, Air Taxi, General Aviation and Military can be obtained from the FAA's Air Traffic Activity Data System (ATADS) through the following link:

FAA ATADS: <http://aspm.faa.gov/opsnet/sys/Main.asp?force=atads>

Data Sources for Average Daily Aircraft Departures to Top 25 Domestic Destinations and Seats per Airline Flight

San Francisco Airport provided this information from the Official Airline Guide and other sources for Figures 5 and 6.

Airport On Time Arrivals

U.S. DOT Airline On-Time Statistics (downloadable data For all Bay Area airports):

http://www.transtats.bts.gov/Fields.asp?Table_ID=236

Airport Contacts

For further information, contact:

Kristi McKinney (Oakland International Airport): cmckenney@portoakland.com

John Bergener (San Francisco International Airport): john.bergener@flysfo.com

Cary Greene (Mineta San Jose International Airport): cgreene@sjc.org